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AUTHOR Klein, Sharon M.
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ABSTRACT

A study looks at young children's responses to tough movement structures, focusing on complements to "easy." The study examines the development of the two major types of rule usage: primitive and adult, and focuses on the inconsistent fluctuations between the primitive and adult levels. It is proposed that the source of complexity in grammatical constructions for the primitive rule usage group is not a function of an overriding primitive rule, but is in the children's capacity to retreat to their syntactically sanctioned causative analysis in experimental contexts. This finding obscures the understanding of what these children really know about the complement structure of the adjectives in question. It is also found that lexical development plays an important role in the movement of children from one stage to another. (MSE)

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ANOTHER LOOK AT CHILDREN'S INTERPRETATION OF COMPLEMENTS TO "BE EASY"

Sharon M. Klein

Department of English, California State University, Northridge

Recent work in the area of child language in light of developments in syntactic theory has raised a number of issues affecting to its core the way we look at the growth of language. We are asking ourselves questions concerning how one should view the process(es) of language development. We must now consider how some view influences what we consider as relevant phenomena for study to begin with, reasonable analyses of the phenomena, and predictions about the emergence of other--possibly related-- phenomena. The underlying issues themselves, nonetheless, are not new. In large measure the questions they elicit and the issues they focus on revolve around a cluster of questions central to linguistic theory throughout its traceable history.

The cluster has to do essentially with the notions *same/different*, with contrast, identity, and variation. Current basic theory driven research has as a central goal the determination of how different any one language can be from any other language, given the biophysical uniformity across human beings that is characteristic of the brain--what we typically take to be the repository for linguistic knowledge. This goal automatically becomes a question about the development of language in children: how is it possible for a child, with his or her neurophysiological makeup, to develop any one of the human languages or dialects that exist? A major part of the answer to this question will come from the specification of Universal Grammar, which a number of researchers take to be the characterization of the biological endowment providing for the internalization of linguistic knowledge, the initial state. But there is a corollary set of questions that must be addressed within this framework. Children's language differs from adult language in easily observable ways. The first question is just how different will (in fact, can) our analysis of a child's linguistic system, presumably underlying these observable differences at some given time, be from the adult system that defines the endpoint of language development? We ask further what the source of the difference must be: what not only permits it, but makes the difference inevitable. Thirdly, we ask how the difference is resolved. As we know from experience, unlike the differences between dialects and languages, the differences between child language and adult language typically resolve. Interacting with this corollary set are the questions generated by our views of the process of language acquisition. How does the picture of an instantaneous model of language acquisition correspond to the presumption of intermediate systems in the course of language development? How does the development of linguistic knowledge interact with the development of knowledge in other domains; how do these domains affect one another? And finally, how does our view of a model of linguistic structure as modular affect the way we perceive (and ultimately, understand) the course of language development?

The discussion in this paper will address these questions in the context of children's apparently different interpretations of *tough movement* structures, such as complements to *easy*, in both Chomsky's study and a subsequent study carried out by Richard Cromer. The discussion assumes the theoretical framework outlined in Chomsky (1981) and (1986), exercising a number of the descriptive mechanisms it provides for. In her monograph, *The Acquisition of Syntax in Children from 5 to 10*, detailing work completed just about twenty years ago, Carol Chomsky did address issues relating to difference, but from a distinct point of view. Focusing on notions of complexity, she sought to distinguish constructions, one from the other, on the basis of the extent to which their varying levels of complexity would be reflected in their appearance in children's language. One of the sets of different constructions Chomsky tested appear as (1) here.

1. a. John is eager to please.
- b. John is easy to please.

She argued that (1b) of the then well-known, now classical pair of sentences represents a higher level of complexity. She attributed this characterization to the claim "that the grammatical relations in (1b) are not represented directly in any way, given that its structure is identical to the structure of its counterpart in (1a)

with quite different (but what were claimed to be the canonical) grammatical relations. The schemata in (2) sketch the relevant issues here, which involve the interpretation of the empty categories, marked as *e*. The subscripts indicate indexing, which we assume is part of the specification of any NP.

2. a. [John_i is eager [e_j to please e_k]]
b. [John_i is easy [e_k to please e_j]]

In the context of these assumptions and claims, Chomsky predicted that children would first interpret sentences such as (1b) as if they were structured like (2a), rather than (2b). Using the sentences in (3), and a blindfolded *Chatty-Cathy* doll, she carried out one of the earlier psycholinguistic experiments designed, as Roeper has recently characterized the role of experimentation, "to measure the deductive capacity of linguistic theory." (Roeper 1988).

3. a. The doll is easy to see.
b. Is the doll easy or hard to see?

Indeed, Chomsky found that boys as old as eight years and five months, and girls as old as six years, six months seemed to interpret sentences in (3) as though the missing subject of *see* were the NP *the doll*, answering the question in (3b) with "hard to see." Questioned further, with "Would you make her easy to see," these children proceeded to remove the blindfold.

On the heels of Chomsky's work, Richard Cromer tested forty-one children between the ages of five and seven in a related experimental situation. He first categorized the children in terms of their performance on the Peabody Picture Vocabulary test (PPVT), using what that test refers to as "mental age," computed on the basis of a child's relative success with this vocabulary test. Then, using a pair of hand puppets--a duck and a wolf--he tested children's understanding of complements to three categories of adjectives, exemplified by the sentences in (4).

4. a. The duck/wolf is anxious to bite.
b. The duck/wolf is fun to bite.
c. The duck/wolf is nice to bite.

(4a) and (4b) of course, reflect the distinction in (2a) and (2b) respectively. (4c) is an ambiguous sentence; it could have an interpretation consistent with either (2a) or (2b). In addition to the difference in the adjectives that he tested, Cromer introduced a slightly different methodology, as well. Providing children in the study with the pair of puppets (a duck and a wolf), the investigator asked these children to show (act out) a sentence just uttered. Beginning with prompts such as "Show me 'the duck bites the wolf,'" the experiment moved through sentences such as those in (4). Cromer also introduced two nonsense adjectives, *risp* and *larsp*. Presenting them as (5) indicates, an experimenter would then proceed to ask a child to depict an interpretation of the sentences "The wolf is $\left\{ \begin{array}{l} \text{risp} \\ \text{larsp} \end{array} \right\}$ to bite."

5. a. See? Someone gave this dog a bone. So he's feeling very *risp*. He's feeling very *risp*.
b. This cat climbed up and picked a rose. And he found that chewing the rose was *larsp*. Chewing the rose was *larsp*.

Supporting Chomsky's findings, Cromer's results reflected that children in the experiment whose "mental ages" on the PPVT were less than six years had the subject of the predicate adjective in what we are analyzing as the matrix clause carry out the action in the subjectless (embedded) infinitive in all cases.

Some interesting variation that Cromer reported merits our attention here, as it will figure in our subsequent discussion. Rather than falling into precisely two groups, a consistent subject analysis group (a group Cromer referred to as "primitive rule users") and a group whose responses consistently reflect adult

judgments (the "passers") the children in Cromer's experiment also formed a third group, which he named "the intermediates." Children in this third group "gave mixed answers--sometimes [using] the named animal and sometimes [using] the other--some of these being wrong" (Cromer 1970, p. 401). In addition, nineteen children were retested a day later, and of these, twelve gave answers that were different from the ones they had given the previous day. Two children in this "inconsistent" group, (mental ages 4:11 and 5:11, respectively), had on the previous day given adult type answers. One on this retest changed to a mixed set of answers (some adult type, some subject only analysis), and the other "reverted to the primitive rule." (Cromer, op.cit. p. 404)

The nonsense word results are also interesting. Children falling into the first group--the subject analysis group--invariably used the subject of the matrix predicate adjective as the actor for the infinitive. The intermediate group, "while predominantly [using the matrix subject], also includes some cases in which children assigned deep subject status to 'the other' in one or both instances, *but incorrectly*. Passers, on the other hand, assigned deep subject status to the surface subject in one case and to the 'other' in the second case, and did so *correctly*" *ibid.*, p. 403, italics mine, SMK).

These results, together with Chomsky's, provide us with the questions we need to ask about difference. What precisely is the nature of the knowledge (the grammatical system) Cromer's (and Chomsky's) primitive rule users have internalized? Does the experimental paradigm reinforce its use? What motivates the inconsistent group to do so? What is the relationship of the inconsistent and intermediate groups to an instantaneous model of acquisition? Corollary to this question is the question of how children come to be "passers" What is the nature of the complexity that Chomsky imputes to structures of the *John is easy to please* type? What insights about the children's underlying systems can the results of the nonsense word subtest in Cromer's work help us develop?

It is not surprising to find that the questions themselves intersect; proposals for answers to one affect subsequent answers and even change the questions. To begin with, it is quite likely that even the primitive rule users are not incapable of assigning an adult structural description (whatever that turns out to be) to the so-called *tough-movement* type constructions. The claim is that underlying these children's "incorrect" responses in both Cromer's and Chomsky's experiments is not an overriding rule of subject control. Rather, the responses reflect an intersection of a set of systems. One underlies a causative interpretation, effected by the children's available grammatical system and the conditions of the experiment. The second is the learning of the vocabulary itself--more precisely, children's learning of the capacity of the predicate adjectives to assign semantic (theta) roles to their subjects. Thirdly, we have the issue of the children's knowledge of the *tough-movement* type structures themselves.

We begin with the causative issue. It propose that many of the children's "incorrect" responses for sentences such as (3b) and (4b) in the two experiments are the consequence of their construction of causatives for *see* and *bite*, with themselves as the agents of these causative transitives. In other words, the structures underlying the children's interpretations of the sentences in (6a) and (6b) respectively are (7a) and (7b).

6. a. The doll is easy to see.
b. The duck/wolf is fun to bite.
7. a. the doll_i is easy [PRO_{arb} to cause [PRO_i to see]]
b. the duck_i is fun [PRO_{arb} to cause [PRO_i to bite np]]

A number of studies (Bowerman 1982a, b, c, 1983, 1987; Lord 1979, Borer and Wexler 1987) have noted the productivity of the causative construction in children's language. Examples such as those in (8)-(10) are abundant in the literature. (The examples in (8) and (9) are from Bowerman, those in (10) are from Lord)

8. a. I don't want any more grapes; they just cough me (2:8 cited in Bowerman from Braine 1971)
b. Don't giggle me. (3:0)

- c. I want to comfortable you (5:9)
9. a. He tippitoe to the graveyard and unburied her. (5:1)
 b. How do you unsqueeze it? (3:11)
 c. Mother: (grabbing child in a game) I have to capture you.
 Child: Uncapture me! (3:10)
10. a. We have two kinds of corn: popcorn, and corn. Popcorn, it crunches. And corn doesn't crunch; it eats (3:3)
 b. You can drink me the milk. (3:8)
 c. I am trying to guess Aunt Ruth what I have (4:8)

In (8), intransitive verbs and adjectives are shown to participate in causative transitive constructions. In (9) we see what have been referred to as novel un-verbs. I have argued (Klein 1984) that children interpret predicates with unXed as passive participles, and from these, deduce the corresponding active verbs that appear as the novel forms. What motivates them to move in this deductive direction is consistent with Lebeaux's claim that children are sensitive to a principle along the lines of (11).

11. a. affected [NPs] are internal arguments of verbs
 b. NP_i [VP V t_i]
 [affected]

In his analysis, such a principle functions as a trigger for the understanding of passives, by motivating the presumption of a trace internal to the VP, on the basis of the affectedness of the subject, giving structures such as (11b). Such a principle would operate as well in intransitive structures where the subject is interpreted by the child as affected.¹ Interestingly, in transitive verb constructions, if the verb participates in intransitive strings as well (as do verbs such as eat, drink, and guess, for example), we would expect children to deduce the causatives that we see in (10). Imputing to children the interpretation of the subject in such constructions as affected, we can see the source the sentences in (10). Eat allows both the intransitive in (10a) and the causative I can't eat her.² A structure such as (12) corresponding to their causative meanings underlies both (10b) and (10c).

12. NP_1 [VP [V { guess }
 { drink } NP_2] NP_3]

The requirements of case assignment to the NP the milk are satisfied if the string drink /guess NP_2 is analyzed as V, which can then then license the assignment of case to the subsequent NP. In (13) the structure this framework would provide for I drink the milk appears.

13. I [VP [V drink t] the milk]

Faced with the experimental situations we have described, young children are very likely to construct analyses of sentences such as *the doll is easy to see* or *the wolf is fun to bite* with structures paralleling those underlying utterances (10b) and (10c). Understanding that the verb bite appears in both sentences such as *the wolf bites* and *the wolf bites the duck*, and wearing two hand puppets that he or she has been instructed to manipulate, the child in Cromer's study is invited to interpret him or herself as an agent of which the utterance given (*the wolf/duck is fun to bite*) is to be predicated.³ It is equally inviting for young children in Chomsky's study to respond with this interpretation. In order to answer "correctly" there, a child not only must have a grammar that does not so readily permit the causative reading, but s/he must also be able to deal with conversational openings in testing situations. The question, "Is this doll easy to see or hard to see?" is incongruous as a sincere question in the context of a blindfolded doll. Any readers who have seen the film by deVilliers and deVilliers, "Out of the Mouths of Babies" will have noted the

does not seem to be a function of the intricacy of either account. Children much younger (chronologically, and given the gap, presumably lexically as well) regularly produce strings like *toys are for to play with*.⁵ Such structures too have been analyzed as instances of operator movement (Chomsky 1977), so their presence suggests the ability of children to analyze such constructions. The presence of simple WH movement and relative clauses, also documented in the literature, leads us as well to conclude that it is not this aspect of the *tough movement* constructions that make them appear to us as complex for children.

The source of the apparent complexity for both Chomsky's subjects and the youngest group in Cromer's study--the primitive rule users-- I would claim, is the capacity of the children to retreat to their syntactically sanctioned causative analysis in the experimental contexts.⁶ Because children do not move abruptly from this stage to an adult stage, but fall into an intermediate group, using both "subject and object" analyses, and erring in their lexical assignment of the adjectives in both cases, we have no evidence for a general change in the grammar that would effect a complete adult system for all of the adjectives in question. We do, on the other hand have support for a picture of grammatical development that involves more than one grammatical module, and in which an unrelated system--in this case the system licensing the productive causatives--veils our view of another developing system.

We also have an interesting question about the intermediate group that the results in R. Cromer's study of nonsense words raise. He noted that children in this group varied in their responses to the words (sometimes using the lexically present NP as the subject of the infinitive and sometimes using it as the object), even given the contexts in which the words were introduced (cf., (5) above). Children whose responses to the other parts of the experiment paralleled what would be adult responses typically used the syntactic contexts to limit their responses to the nonsense words. The lexically present matrix subject was subject in the complements to *risp*, and the matrix subject was object in the complements to *larsp*. In fact, the most that the examples in (5) can tell one is that both of these two nonce words could belong to the category of *nice*; there is no evidence that excludes this analysis for either of them. The older children, then are, in a sense, jumping to conclusions. In more positive terms, they are presumably forced into this deductive approach that will, in fact, give them the best results; they will, in the worst case, only fail to provide two readings for adjectives of the *nice* variety, but they will not miscategorize an adjective. Such a failure is one of the easiest to remedy with the positive evidence available. A question that remains is what distinguishes the child who will not be strongly influenced by the structures in which s/he first encounters the adjectives and the child who will. Given that we know one difference is lexical maturity, we can ask what role that plays in this development.

We have seen that the complexity of *tough movement* clauses may be an issue for us to face, more than it is an issue for children. We have also seen that the difference between children with distinct responses to these constructions may not be a function at all of an overriding primitive rule operating for these structures in particular. Rather, the youngest children's responses internal to the experiments are a function of an independently motivated grammatical system intersecting with we can call the pragmatic demands of the experimental situation itself. This grammatical system obscures our view of what these children really know about the complement structure of the adjectives in question, although other evidence shows that very young children are in control of the structure imputed to the *tough movement* constructions. We have also seen that lexical development--measured in terms of vocabulary knowledge in Cromer's study--plays an important role in the movement of children from one stage to another. Although our understanding of this fact remains to be made precise, we are in a strong position to do so, having separated these issues from the general issue of children's analyses of *tough movement* constructions.

NOTES

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¹ Elsewhere I argue that children develop first a grammar with an ergative system working in the syntax, related to a principle such as (11) and its corollary. Children later abandon such a system, moving the analysis of ergativity to the lexicon. (cf. Roeper and Keyser (1985) and Napoli (1987) for differing views of the ergativity system in English.

² This was reported in Bowerman's work, attributed to a 3:3 year old child who used it in reference to her inability to make her doll eat.

³ This account is easier for us to see with some of the adjectives than it is with others. Compare the **duck is fun to bite** and **the duck is tasty to bite**, for example. Nonetheless, given our lack of knowledge about the children's attribution of thematic structure to individual lexical items here, such as **tasty, anxious, creepy**, etc., we should not necessarily be bound by our own adult knowledge of these adjectives. In general, while it is the case that our view of children's developing linguistic systems will be made clearer through the lens of an explicit theory of available linguistic systems, and should be constrained by such a theory, our views of children's underlying linguistic systems must not be exclusively filtered through our understanding of their language only as speakers of its adult version.

⁴ The question of what moves a child to recognize passive morphology as the licensing agent for movement insofar as it induces the presence of a VP internal trace confronts us here. This motivation may grow with the recognition of the category into which the English language falls with respect to the interaction of bound morphology and syntax. Addressing some of the issues such a question raises is work by Jaeggli and Safir (1987) and Jaeggli and Hyams (1987). Of course Roeper (1987a, b) deals with questions related to the intersection of bound (derivational) morphology and syntax in this context as well.

⁵ See Nishigauchi and Roeper (1985) for discussion of these purpose infinitives (which they have found in the spontaneous speech of a child between the ages of 2 and 3 1/2), the presence of **for** in them, and the issue of analyzing them as instances of operator movement.

⁶ An obvious question is whether children would fall into any "primitive rule user" type group if the context inviting a causative analysis, but making it impossible for us to see explicitly, were removed. An experiment using only pictures depicting three possible interpretations for a sentence such as **the wolf is hard to bite**, including an explicit causative, an analysis with **the wolf** subject of the infinitive, and an analysis with **the wolf** as object of the infinitive is planned. The three categories of adjectives, illustrated in (4) would be included.

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